REMARKS .

Reconsideration and allowance of the subject application are respectfully requested. Claims 1-26 remain pending, claims 1 and 14 being independent.

Applicants appreciate the Examiner's indication that the prior art rejections set forth in the Office Action of October 4, 2005, have been withdrawn. Applicants respectfully traverse the new grounds of rejection set forth on pages 2-9 of the Office Action for reasons detailed below.

Prior Art Rejections

Claims 1-4, 9-10, 13-17, 22-23, and 26 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel (U.S. Patent 6,163,127), in view of Rozman (U.S. Patent 5,493,200). Claims 5 and 18 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Rozman and further in view of Caroboiante (EP 0 558 261). Claims 6-7 and 19-20 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Rozman and further in view of Quirion (US Publication No. 2005/0151502). Claims 8, 11-12, 21, and 24-25 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Rozman and further in view of Jansen (US Patent 5,585,709). These rejections are respectfully traversed.

By way of review, independent claim 1 is directed to an adaptive, indirect position sensing apparatus for driving rotor position of a synchronous machine. The apparatus of claim 1 comprises: a first rotor position deriving unit for generating first rotor position values by applying a first indirect rotor position calculation technique, which emulates a resolver, wherein said first indirect rotor position calculation technique generates first rotor position values as a function of AC excitation supplied to a field winding of the synchronous machine rotor; a second rotor position deriving unit for generating second rotor position values by applying a second indirect rotor position calculation technique; and a rotor position result output unit for outputting rotor position results over a range of rotor speeds as a function of said first rotor position values, said second rotor position values, and rotor speed.

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Therefore, the first indirect rotor position calculation technique applied by the apparatus of claim 1 generates rotor position values as a function of AC excitation supplied to a field winding of the synchronous machine rotor. See e.g., paragraph [0028] of the specification.

As discussed in the Reply dated February 6, 2006, Patel discloses a system and method for sensorless rotor position detection, using a combination of two rotor position estimation techniques for low and high speed operation. Column 2, lines 11-24. During low speed operation, the system of Patel injects a signal into the voltage source inverter and extracts high-frequency currents that vary with rotor position of the motor 16. The low speed sensorless position calculation technique of Patel is based on injection of additional signal into an interior permanent magnet motor 16, and, as such, is not a function AC excitation supplied to a field winding of a synchronous machine rotor.

Although the Examiner acknowledges this deficiency in Patel, the Office Action relies on Rozman as allegedly making up for this deficiency, concluding on page 4 that "[i]t would have been obvious to one of ordinary skill in the art to modify the method and system of Patel to function with an AC excited field winding motor as taught by Rozman." Applicants submit that this reasoning fails to establish *prima facie* obviousness of any pending claim.

To establish *prima facie* obviousness, all claim limitations must be taught or suggested by the prior art and the asserted modification or combination of prior art must be supported by some teaching, suggestion, or motivation in the applied reference or in knowledge generally available to one skilled in the art. *In re Fine*, 837, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Thus, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). The prior art must suggest the desirability of the modification in order to establish a *prima facie* case of obviousness. *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1995). It can also be said that the prior art must collectively suggest or point to the claimed invention to support a finding of obviousness. *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986); *In re Ehrreich*, 590 F.2d 902, 908-09, 200 USPQ 504, 510 (CCPA 1979).

Initially, Applicants note that the asserted modification of Patel would require somehow changing the permanent magnet motor 16 described therein to a synchronous machine with a

rotor having a field winding for AC excitation. Such a proposed modification would clearly render the Patel system unsuitable for its intended purpose of estimating position in a permanent magnet motor drive system. See e.g., MPEP Section 2143.01, stating that a proposed modification that renders the prior invention unsatisfactory for its intended purpose is not obvious. There is no suggestion in the asserted prior art or knowledge generally available to those of ordinary skill in the art to make the modification asserted.

Furthermore, even if the system of Patel were somehow modified to operate with a synchronous machine with a rotor having a field winding for AC excitation, such a modification would not result in the invention as set forth in claim 1, which utilizes a first indirect rotor position calculation technique that generates first rotor position values as a function of AC excitation supplied to a field winding of the synchronous machine rotor.

At least in view of the above, Applicants respectfully submit that the asserted combination of Patel and Rozman (assuming these references may be combined, which Applicants do not admit) fails to establish *prima facie* obviousness of claim 1 or any claim depending therefrom. Claim 14 and claims depending therefrom are believed to define over the asserted combination based on similar reasoning to that set forth above with regard to claim 1.

The Examiner's reliance on the additional secondary references of Caroboiante, Quirion, and Jansen as allegedly pertaining to incremental features of certain dependent claims fails to make up for the deficiencies of the Patel-Rozman combination discussed above with respect to the independent claims. Therefore, the asserted combination of references (assuming these references may be combined, which Applicants do not admit) fails to establish *prima facie* obviousness of any pending claim. In view of the above, Applicants respectfully request reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. § 103.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone
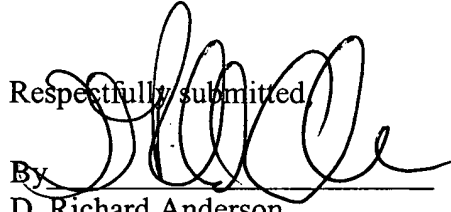
number below, to conduct an interview in an effort to expedite prosecution in connection with

the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies,

to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional

fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: May 3, 2006   Respectfully submitted,

                                            By

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